Australian Government

MEM26014 Adjust resin chemicals for current conditions

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM26014A Adjust resin chemicals for current conditions

Application

This unit of competency defines the skills and knowledge required to apply knowledge of resin chemistry, particularly catalysis and resin curing, to make adjustments to the chemistry to suit current requirements caused by weather, job specifications or other factors and requires knowing the limits of these adjustments and having discussions with suppliers/manufacturers regarding resin chemistry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: **A**

Unit Weight: 4

Pre-requisite Unit

MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Composites

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.
1	**Determine job requirements**	1.1 Follow standard operating procedures (SOPs)
		1.2 Comply with work health and safety (WHS) requirements at all times
		1.3 Select and use appropriate personal protective equipment (PPE) in accordance with SOPs

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.
		1.4 Identify variables for the chemistry of resin types
		1.5 Identify impacts of environmental changes on resin chemistry
		1.6 Observe current environmental conditions
		1.7 Predict impact of current conditions on resin chemistry
		1.8 Discuss resin chemistry and adjustment limitations with suppliers
2	**Identify adjustments which may be made to meet current conditions**	2.1 Identify limits of resin chemistry adjustment
		2.2 Determine impact on resin chemistry of changing resin composition
		2.3 Select resin composition changes to counteract impact of current conditions
		2.4 Compare selected composition changes with adjustments allowed by manufacturer of resin system
		2.5 Select most appropriate resin composition changes
		2.6 Identify alternative process changes to adjust for conditions
		2.7 Fabricate a sample using the selected adjustment
		2.8 Conduct/organise for relevant tests
		2.9 Evaluate test results against product requirements
		2.10 Review resin composition changes and take appropriate action
3	**Fabricate product using adjusted composition/ conditions**	3.1 Identify and control hazards
		3.2 Make any appropriate adjustments to the resin system recipe
		3.3 Prepare materials, tools and equipment and minimise

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	waste
	3.4 Review product compared to requirements
	3.5 Review chemistry modification process
	3.6 Identify areas for improvement and take appropriate actions
	3.7 Complete any required documentation/reporting according to SOPs

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Resin chemistry includes the following:	• process of curing/cross linking of resins • rate of cure and change of properties over cure time • changes in viscosity and other flow properties during progress of cure • final properties of resin post-cure
Environmental changes include one (1) or more of the following:	• temperature • humidity • air flow/wind • solar/ultraviolet (UV) insolation

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Resin composition includes the following:	• resin/catalyst ratio • resin/promoter ratio • resin/catalyst/promoter ratios • changing temperature of resin components (e.g. using chilled catalyst or resin) • ratios of other resin system components
Most appropriate resin composition changes include one (1) or more of the following:	• comply with product requirements • adjust for the current conditions • have greatest ease of use in manufacture • have best financial return • have greatest sustainability contribution
Alternative process changes include one (1) or more of the following:	• controlling the environmental conditions • moving the timing of the job to when conditions are more favourable (e.g. at night) • moving the location of the job to where conditions are more favourable (e.g. in plant, different site and in shade)
Conditions that can be adjusted to improve outcomes include the following:	• unusually hot/cold workplace/weather • extreme humidity • very tight/unusual specification of properties required of product • high/low air flow/wind
Sustainability includes the following:	• survival of the ecology/physical environment • economic viability • social sustainability

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2